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THE CARE OF RECORDS IN A NATIONAL EMERGENCY

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THE CARE OF RECORDS IN A NATIONAL EMERGENCY

Introductory Note

As one of the contributions of The National Archives in the present emergency there are printed in this *Bulletin* two documents prepared in The National Archives that have been made available to the Committee on the Conservation of Cultural Resources, which was established by the Science Committee of the National Resources Planning Board.

The first of these documents is a joint report to the Society of American Archivists by two special committees of that society—one the Committee on the Protection of Archives Against Hazards of War and the other the Committee on the Emergency Transfer and Storage of Archives. This report, entitled "The Care of Records in a National Emergency," was issued in processed form for limited distribution by The National Archives early in October 1941 and was turned over to the Committee on the Conservation of Cultural Resources for its use later in that month. R. D. W. Connor, first Archivist of the United States and now Professor of American History and Jurisprudence at the University of North Carolina, was chairman of the Special Committee on the Protection of Archives Against Hazards of War, and he had as his associates on the committee Julian P. Boyd, Librarian of Princeton University, and Luther H. Evans, Chief Assistant Librarian of Congress. The Special Committee on the Emergency Transfer and Storage of Archives was composed of Collas G. Harris, Executive Officer of The National Archives, as chairman, Sargent B. Child, Director of Historical Records Survey Projects, and Margaret C. Norton, Archivist in the Illinois State Library. It should be stated, however, that the task of preparing the report fell chiefly on three members of the National Archives staff, Emmett J. Leahy, of the Division of Treasury Department Archives (now Director of Records Coordination in the Navy Department), Robert H. Bahmer, of the Division of Agriculture Department Archives, and Forrest R. Holdcamper, of the Division of Commerce Department Archives, whose services were made available by the then Archivist of the United States. In their work these men had the advantage of the counsel and suggestions of Solon J. Buck, then Director of Research and Publications in The National Archives and now Archivist of the United States.

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The second document, "Select Bibliography on the Conservation of Cultural Resources in Times of War," contains all the items in the *Tentative Bibliography on the Conservation of Cultural Resources in Times of War* and in a supplement thereto, which were issued by The National Archives in processed form in April and June 1941, respectively, for the use of the Committee on the Conservation of Cultural Resources, together with a few additional items that have come to light.

It will be noted that the report deals with records, while the bibliography is concerned with cultural resources, a term that embraces not only records but also books, paintings, museum objects, and the like. It is believed that protective measures applicable to records can be applied in a large measure to books, paintings, and museum objects, however, and that many of the bibliographical items concerned with the protection of libraries, art galleries, and museums will contain information of considerable value for the protection of record repositories.

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THE CARE OF RECORDS IN A NATIONAL EMERGENCY

Joint Report of the Special Committees of the Society of American Archivists on the Protection of Archives Against Hazards of War and on the Emergency Transfer and Storage of Archives, October 1941

INTRODUCTION

The custodian and administrator of public and private records cannot be immune from the pressure of increased activities brought about by a national emergency. He must consider methods of protecting his records from the dangers resulting from those activities and from possible enemy action. What these dangers are and what protective measures are appropriate for meeting them should be of vital interest to all persons responsible for the administration or custody of records. This applies whether the records are public, such as those of Federal, State, county, and municipal agencies, or private, such as those of business firms, labor organizations, churches, schools, patriotic and fraternal societies, political and social organizations, and even families and individuals. It applies also whether the records have remained in the custody of the agencies that originally created or preserved them or have been transferred to the custody of archival establishments, historical societies, or libraries. Certainly historians, social scientists, and other scholars who use records for research purposes are also vitally interested in their preservation.

Custodians and administrators whose records are located within 100 or 150 miles of the coast or within areas of likely military objectives such as communication centers, military or naval concentration points, oil refineries, and shipyards will perhaps be most concerned with protection from military hazards. Administrators everywhere, however, must face the consequences of emergency activities. Those remote from areas of military danger may be required to furnish space for collections moved, to render increased service, to assist in the proper control of the bulk of new records created, and to aid in the problem of preserving a proper record of the emergency.

European experience in past wars has shown the importance of cooperative planning in advance of an actual emergency. For instance, at the start of the Spanish Civil War juntas or committees of interested citizens, including artists, architects, librarians, historians, and archivists, took on themselves the task of assembling exposed collections from widely scattered areas at central places within the

provinces, usually in the quarters of historical or archival agencies. The juntas were able to save much, but the rapidity and violence of military operations prevented the removal of many documents of value.

Before the outset of the present war, most European nations had made preparations for the removal and storage of their most valuable records. In the spring of 1939 many records of the French Foreign Office had been removed from Paris to a safer location and plans were under way for the evacuation of many of the documents in the British Public Record Office. In Budapest, areas within the Hungarian Royal State Archives building set aside for the preservation of valuable medieval documents were protected by sandbags banked in the passages and against the windows. The sandbags were put in place during the crisis of September 1938 and were still in place in March 1939. It is noteworthy that in these cases precautions were taken in advance of actual military danger.

Lack of advance planning, on the other hand, has sometimes been responsible for the unnecessary destruction of valuable records in Europe. Collections have been weeded out indiscriminately or sent intact to the paper mill. Others have been sent to unsafe or poorly improvised storage places.

Whatever the plans, the administrator or custodian of records should make them in cooperation with the various local councils for civilian defense in his area and with the regional administrator for the Office of Civilian Defense. Since the actual operation of his program, particularly for evacuation, will depend on the degree of danger to which his records are exposed, he should take particular pains to keep in touch with the regional administrator for civilian defense, who, in turn, will be able to draw upon military and naval advice. The jurisdiction of each of these regional administrators coincides with an Army corps area, and the headquarters of each are in the same city as those of the Army corps. Present addresses of the officials in the various areas are as follows:

I. 101 Milk Street, Boston, Mass.
II. Port Authority Building, 111 Eighth Avenue, New York, N. Y.
III. Enoch Pratt Library, 400 Cathedral Street, Baltimore, Md.
IV. 150 Hunt Building, Atlanta, Ga.
V. 427 Cleveland Avenue, Columbus, Ohio.
VI. 120 South LaSalle Street, Chicago, Ill.
VII. 620 World-Herald Building, Omaha, Nebr.
VIII. 1014 Majestic Building, San Antonio, Tex.
IX. 233 Sansome Street, San Francisco, Calif.

For information as to changes in the addresses of these officials, the custodian or administrator should communicate with the Office of

Civilian Defense in Washington, D. C. He is also urged to keep in touch with that Office for further and more detailed information concerning hazards and building protection.[1] On specific problems of selecting material for protection and other problems of record management, custodians should consult competent authorities. Information as to such authorities may be obtained from the Executive Secretary of the Committee on the Conservation of Cultural Resources, The National Archives, Washington, D. C.; the Director of Historical Records Survey Projects, Work Projects Administration, Federal Works Agency, 1734 New York Avenue, NW., Washington, D. C.; the secretary of the Society of American Archivists, Box 6154, Washington, D. C.; or the secretary of the American Association for State and Local History, Box 6101, Washington, D. C.

HAZARDS LIKELY TO AFFECT ARCHIVES

Records are exposed to two kinds of danger at this time. The more pressing danger results from the impact of emergency activities on archival and record administration. There is pressure for the transfer of trained personnel and the diversion of funds to what is considered more urgent work. The space occupied by records is needed for other uses, and the records themselves are in demand because of the greatly increased value of waste paper. It becomes increasingly difficult to obtain materials of satisfactory quality with which to make the most essential documents of the present day. Controls normally effective over the creation of current records tend to be dissipated by the hurried and temporary character of emergency record administration. The less immediate but more easily defined danger is the destructive effect of a possible enemy action such as occupation, resulting in seizure, or bombing, resulting in fires or abnormal exposure.

Hazards resulting from effects of emergency activities.—Emergency demands have already depleted the staffs of national and local record offices and of nongovernmental manuscript depositories abroad. The skeleton staffs of such agencies have had to postpone indefinitely much of the normal work of their profession in favor of wartime needs. In the United States, where archives administration is a young profession, the comparatively few trained custodians and administrators can best serve the national interest in the field of their

[1] U. S., Emergency Management Office, State and Local Cooperation Division, *Civilian Defense; Protective Construction* (Washington, 1941. *Structures Series, Bulletin* no. 1). Material of this type will doubtless be issued from time to time by the Office of Civilian Defense.

special competence. Within that field there are excellent opportunities for extraordinary service.

During periods of greatly expanded activity, such as the World War years, the period of the New Deal, and the present national emergency, records accumulate in great volume. Of the total accumulation of War Department records from 1789 to the close of the World War, about 81 percent were created in the last 2 years of that period. In England the records created during the World War equaled the total previous contents of the Public Record Office. In a recent 5-year period, what is now known as the Work Projects Administration accumulated 235,931 linear feet of records in its field offices, and the Social Security Board accumulated 207,000 cubic feet of records in its headquarters office. The great bulk of modern records renders them peculiarly vulnerable to emergency demands.

Expanding governmental and business activity creates an urgent pressure for space. Less current records must give way to more current files; buildings used for the storage of records are demanded for office use. Essential or valuable records are in imminent danger of outright destruction or slow disintegration because of their consignment to damp, verminous cellars or to attics where they are in danger of being damaged by fire, theft, dust, filth, and mold.

Added to the pressure for space is the increased demand for old paper to be used in the manufacture of new paper products and munitions. To satisfy this demand in England during the last war many valuable records in public and private custody were destroyed. In 1940 the Master of the Rolls issued an urgent appeal for aid in preventing the destruction of historical documents as waste paper. In the early summer of 1941 some restrictive measures were adopted by the Federal Government in this country to conserve paper and paper stock. Competent record administrators and custodians are in a strategic position not only to protect their treasures and insure an adequate record of current activities but also to assist in the solution of space and waste-paper problems. Disposal of great quantities of valueless governmental and private records can and should be made. A well advised and continuing program of disposal tends to relieve the pressure on the essential or valuable core of such records. To this end and for purposes of economy, it is important that selection for disposal be made promptly. The Federal Government, most States, many municipalities, and most private concerns have established procedures for the reduction of the bulk of record material. If such procedures have not been established or if they do not include the counsel of an archivist, director of a State or local historical

society, historian, or some similar authority, the necessary steps to develop them or to provide such counsel should be taken.

It is necessary that such measures be taken not only for the records that came into being before the present emergency but also for those created by emergency activities. By the nature of these activities good housekeeping is subordinated to speed, and the resulting records usually do not experience the restraining influences of normal times such as established procedures, experienced personnel, segregation of permanent and temporary files, regular eliminations, and some provision for long-range storage. An effort should be made to have experienced record administrators or their assistants who are now employed by permanent branches of the Government or by private concerns assigned to record management in the new and probably temporary branches of the Government. Those so assigned should bear in mind the necessity of preserving indefinitely the records in their charge that have continuing administrative, legal, or research value. With this goal in mind they should provide for an adequate permanent file, for the prompt elimination of nonessential and particularly of duplicate material, and for a satisfactory disposition of the remaining records upon the termination or transfer of the activity.

In the solution of these and other record problems, microphotography will undoubtedly play an increasingly important role. Microcopies can ease the pressure for space, provide an insurance copy of records having an intrinsic, symbolic, or sentimental value, and in some cases be an excellent alternative to evacuation or other transfer. It is the responsibility of each administrator, however, to see that all legal, administrative, and other requirements are satisfied when microphotography is employed.

There is a proportionately larger number of new or temporary officials in most phases of governmental and private enterprise during periods of greatly increased activity. This fact increases the danger of removal and possible loss of records, frequently of the most important character, by these officials or employees when they separate from a service. If this danger is borne in mind, fairly simple measures to prevent the removal or loss of records can be devised to fit each circumstance. In some States, for example, outgoing officials are required by law to sign a document of transfer for the records as well as for the equipment, books, and other materials in their charge.

Military hazards.—Although the danger to records in the United States from direct military action seems to be relatively remote, some consideration must be given to what may be a most serious problem. Under the circumstances aerial attack, perhaps token bombing, is the most likely hazard. According to information available at this writ-

ing, the main types of bombs against which protective measures may have to be taken are those shown in the accompanying chart.[2]

Types of Bombs

	ARMOR PIERCING	DEMOLITION	FRAGMENTATION	AERIAL MINE	INCENDIARY LIGHT	INCENDIARY SCATTER	GAS
Usual weight	1100 lbs.	550 lbs.	30 lbs.	2000 lbs	2 lbs.	30 lbs.	30 lbs.
Range of weight	200-4000	100-4000	17-2000	1000-5000	2-60	17-500	30-600
Sectional pressure	9.7	3.1	2.0	-	0.3	1.5	1.5
Percent of explosive	10-15	40-60	15	90	-	-	-
Terminal velocity	1400 ft/sec	1100 ft/sec	725 ft/sec	-	350 ft/sec	-	-
Penetration	Excellent	Good	Poor	Poor	Poor	Fair	Poor
Blast	Reduced	Heavy	Light	Extr. heavy	None	None	None
Used against	Warships and special targets	Buildings bridges and military concentrations	Personnel and transport	Wholesale demolition of weak structures over wide area.	To cause fires for direct damage and to illuminate the target		Personnel contamination

The most important types of bombs from the standpoint of civil protection are demolition bombs and incendiary bombs. There are instances, however, of the use of aerial mines, which carry a much greater quantity of explosives. Such mines caused widespread destruction among the weaker structures in the poorer sections of London. Thus far armor-piercing and fragmentation bombs have been directed only against primary military objectives such as warships and troops. Gas bombs have not been used.

Demolition bombs are designed for the primary purpose of destroying buildings and other structures. The majority of them dropped in attacks on European cities have not exceeded 550 pounds in weight. Protective construction to withstand direct hits from medium-sized missiles of this type is not generally practicable.

Such factors as shape, weight, dimensions, sectional pressure, strength of case, and type of fuse determine the penetration of any

[2] Sherwood B. Smith, "Air Raids and Protective Construction," *Military Engineer*, 33:287 (July–Aug. 1941). The author defines sectional pressure as the weight of the bomb divided by the maximum cross sectional area, in square inches in this case. Sectional pressure has a considerable effect on the velocity attained by the bomb and on the penetration. Penetration is directly proportional to the sectional pressure, according to accepted formulas. Terminal velocity is defined as the maximum velocity attainable by a bomb.

bomb. The current estimate that slightly more than 5 feet of reinforced concrete (class A, 3,400 lbs.) is necessary to withstand a direct hit of a 500-pound bomb with a delayed-action fuse illustrates the difficulty of devising adequate protection. The penetration of a bomb with a delayed-action fuse usually is two to three times greater than that of a bomb with an instantaneous fuse.

Bombs dropped from airplanes traveling between 120 and 210 miles per hour at altitudes from 2,000 to 20,000 feet may strike at angles to the horizontal varying from 51 to 83 degrees. Greater or lesser angles are possible in dive bombing. Walls and foundations, therefore, are vulnerable to direct hits.

Effective protection can be devised against bombs bursting nearby. When a bomb with an instantaneous fuse strikes the ground or some other substantial object, it penetrates the greater part of its length before exploding. The blast is outward and upward. Splinters are thrown out at an extremely high velocity, more than twice the muzzle velocity of a service rifle. They may pierce nearby brick or concrete walls or may be fatal to persons as far as 200 yards away. Objects or persons close to or flat on the ground in such cases fare remarkably well. The blast following detonation of an explosive consists of a compression wave and a suction wave. The compression wave is more violent and of less duration. Objects nearby may be torn to pieces and blown a considerable distance. Objects not shattered or blown in by the pressure wave may be pulled toward the center of the explosion by the weaker suction wave because of its greater duration.[3]

If a bomb, usually one with a delayed-action fuse, penetrates well into the ground, its detonation causes an earth shock or earth wave. This is frequently referred to as mining and may cause considerable damage. In such cases, however, blast and splinter effects are reported to be negligible.

The effects of near hits by demolition bombs are not confined to blasts and splinters or mining. Particularly in urban areas, where most record offices are located, there is danger of flood from shattered sewers and water mains and of fire from broken power and gas lines. To the omnipresent dust problem must be added hazards from exposure and falling debris.

Incendiary bombs ignite on impact and burn with intense heat. One large bomber can drop as many as 2,000 incendiary bombs. Composed chiefly of magnesium, thermite, oil, or other highly incendiary material, they are effective against inflammable targets

[3] U. S., Emergency Management Office, *Civilian Defense; Protective Construction*, 6 ff.

such as most urban areas and munitions dumps. Even the lighter incendiary bombs will break through average roofing. Because precautionary measures were inadequate, incendiary bombs caused very great damage in London in 1939 and 1940.

In addition to the damage resulting from the more common demolition and incendiary bombs, there is the possibility of damage from aerial gunfire, since modern military aircraft carry not only machine guns but small cannon as well. Moreover, fragments of antiaircraft shells falling from great heights can be injurious to persons, light tile roofs, and skylights. The precautions taken against demolition and incendiary bombs should be more than enough protection against these additional hazards. The remoteness of any danger from artillery fire or naval bombardment of coastal areas minimizes the consideration that need be given to the greater penetration of the shells used in either of these operations.

If the known types of gas bombs should be used they will be likely to cause damage to records only if the gas they release settles in liquid form on the records themselves. The damage can be minimized or nullified by standard methods of decontamination, which usually involve the application of some alkalizing agent.

SELECTION OF ARCHIVES FOR PROTECTION

The custodian of either public or private records, once he has taken stock of his position and knows the hazards he must face, should determine what protective measures he will take for the records in his charge. These measures will depend to a large extent upon the quantity and the importance of his records. Practical considerations of cost will in most cases force the custodian to appraise his records on the basis of importance and to give the highest degree of protection to those considered most valuable.

Bases for determining the most important records may be uniqueness, age, irreplaceability, and legal or research value. To the tax collector, incomplete tax returns for 1940 will be more important than completed tax returns a hundred years old. A deputy collector of customs at a small Atlantic port may be more interested in keeping his current motorboat file than in preserving crew lists, manifests, and other shipping records of the port in the early days of the Republic. The research student and scholar will be apt to consider important those records which show how things were done or from which the growth and development of an institution may be studied. The old shipping records will be much more important to him than the motorboat licenses, and the old tax returns will be as important as the present ones. To the layman those records on which his citi-

zenship and property rights depend will be considered most vital; for example, land plats, registers of deeds and mortgages, and records pertaining to birth, death, and naturalization. To the State or Nation as a whole some records have importance as symbols of fundamental rights, for example, the Declaration of Independence and the State and Federal Constitutions, and others, such as any letters and papers of Washington and Lincoln, have great sentimental value.

The custodian, then, must balance these various points of view and weigh them against his own knowledge of his records; in the end, what records he selects for the various degrees of protection will depend upon his own common sense and best judgment. The following types of records might be considered important from one or another of these points of view.

Types of important records.—Custodians of Federal and State records should attach especial importance to records of relations with other countries, laws and proclamations, legislative journals and papers, correspondence relating to matters of policy, registers of professional licenses, corporation and insurance records, election and military service records, mine maps, and documents relating to property or legal rights such as contracts, accounts, enrollments and registers of vessels, and court records. County clerks and recorders should consider of importance boundary survey plats, registers of deeds and mortgages, and court records. Any official—city, county, State, or church—in charge of records relating to births, marriages, deaths, and naturalization should realize their value, particularly in view of the continually increasing demand and need for such records. Secretaries of business firms probably will give first consideration to such records as charters, deeds, minutes, and legal, financial, and claims records; the charge accounts of a large department store or the insurance policies of a great insurance company would no doubt get special protection. Schools, universities, trade and labor organizations, and patriotic and fraternal societies all have records vital to their functioning or important from a historical point of view.

Service demands.—If current work is not to be completely disrupted, it must be emphasized that the custodian also has to consider all these types of records from the point of view of use. He must make sure that those records on which there are essential service demands are available until the latest possible moment. Even then they must not be placed in completely dead storage. The custodian of current public and business records in particular must face this problem. Conversely, those records for which there are few if any

calls of an urgent character may be removed or withdrawn completely from use at any time before an emergency arises.

Plans for selection already proposed.—Consideration of some of the plans already made for selecting records deserving various degrees of protection may be helpful to the custodian in determining his own course of action. The archivists of the various provinces of the Netherlands, for instance, in general selected for the highest degree of protection all records before 1700, the oldest charter collections and nobility records, the oldest church and legal documents, some boundary maps, and the oldest baptismal, marriage, and funeral records.

The Division of Manuscripts of the Library of Congress selected materials on the basis of irreplaceability and uniqueness and gave primary attention to those considered most important for the history of democracy. Ninety percent of the material was deemed worthy of some degree of special protection, but this material was divided into six groups on the basis of importance. The A–1 group was kept as small as possible by rigid selectivity in order to facilitate removal. Included in this group were the original materials of earlier date than 1763, such as the Magna Charta; all political material both official and private or personal from 1763 to 1783, including the papers of the Continental Congresses, the Articles of Confederation, the Declaration of Independence, and papers of Washington, Hamilton, and other founders of the Nation; papers and records of the Confederation period to 1789, including the Constitution; papers of all Presidents and members of the Government to 1825; and a few distinguished or highly representative items from the primary political sources after 1825. The A–2 group was quite large and consisted of most of the important political material from 1825 to date. The A–3 group was made up of the leading economic, military, religious, artistic, scientific, and literary writings. The A–4 group included papers concerning the various professions and materials similar to those in the A–3 group but of secondary importance. The A–5 and the A–general group consisted of the remainder of the manuscripts, including, for example, letters of private soldiers in the Civil War, and of reproductions of manuscripts.[4]

The National Archives has analyzed the records in its custody and placed them in three groups. Group I includes those fundamental records the preservation of which from capture and damage is deemed necessary for the public morale and the Nation's honor. Group II

[4] See U. S., Library of Congress, *Report on the Precautionary Measures Regarding Its Collections Adopted by the Library of Congress* (Washington, 1941).

includes essential records the loss of which would prove a serious handicap to Government agencies, scholars, and others. This group is subdivided into two categories: (a) Those records that can readily be removed to safety without seriously handicapping service because considerable portions of them exist in duplicate form and (b) those that cannot readily be moved because of existing demands for service. Group III includes the great bulk of the records; these records will not be evacuated.

As applied to a specific case—the records of the Department of State in the custody of the Archivist—this grouping shows the following results:

Group I includes ratifications of the Constitution and the first 10 amendments, papers concerning the ratifications of amendments 11 to 19, laws of the United States, Presidential proclamations, and Executive orders. The texts of most of these documents are in print, and the records could be removed before a critical emergency arose.

Group II–a includes treaties with foreign powers and with the Indian nations, records regarding Presidential electors, diplomatic and consular instructions and despatches, boundary commission records, claims and other commission and international conference records, and miscellaneous records such as Territorial papers. These records could be removed on notice of danger. Group II–b includes notes to and from foreign legations in Washington, domestic correspondence of the State Department, and registers of diplomatic, consular, and domestic correspondence. Because these records are in constant demand for service they would not be removed until danger is imminent.

Group III includes records that are important but not "fundamental" or "essential"; they will not be evacuated but will be given all possible protection in the National Archives Building.

The Business Historical Society has prepared a pamphlet entitled *The Preservation of Business Records* (Boston, 1940), which includes a minimum list of material that a business firm should keep. This list may also be helpful to the custodian of business and other nongovernmental records in determining the relative importance of his records for purposes of protection or evacuation. The list includes ledgers containing controlling accounts, journals to the control ledgers, balance sheets, auditors' reports, tax returns, reports summarizing specifications and sources of supply, summary statements of purchases, inventories, pay rolls, and sales, charts of plant layout and the flow of work and materials, comparative figures of production, reports of advertising, minute books, and policy letters and reports.

Whatever plan is adopted, again it must be repeated that the record custodian must balance the various points of view as to importance against the nature and use of his records and make his selections on the basis of his own common sense. He probably will have a few records to which he will give the highest degree of protection either by evacuation or removal to safer places within his depository, a somewhat larger group to which he will give special protection in place, and a large group to which he will be unable to give any special protection.

BUILDINGS AND STORAGE FACILITIES

After the responsible authorities have appraised their record groups and measured their value against the known or foreseeable hazards, they can then determine the protective measures that may be necessary. Close cooperation throughout with the civilian defense authorities is important. In many cases collections normally are not housed satisfactorily. The hazards of a national emergency may give the impetus needed for the provision of better buildings or improved storage facilities. In a few cases plans for new quarters may have been approved. In that event the administrator or custodian is in a better position to obtain maximum protection for the records in his charge than he would be otherwise.

The great weight of responsibility for the preservation of records should counteract any disinclination to act because of skepticism concerning the effectiveness of an enemy action against the continental United States. This responsibility for preservation and the housing it entails are essentially long range in character. Precautions must be taken against both immediate and potential dangers. There was a greater destruction of records in Paris during the struggle between the Versailles government and the Commune in the early 1870's than there was during the preceding invasion and occupation of Paris by the Prussians. The almost total loss of the Irish archives from the bombing of the Four Courts in Dublin several decades ago resulted from internal strife rather than from a foreign foe. The gaps in many of the Federal archives in the Southern States for the period of the Civil War is an American testimony to this danger. The destruction of records by fire, flood, and other "acts of God" need not be discussed here.

It is of first importance that wherever possible record depositories be outside the zone of military objectives. Preference should be given also to areas that are likely to be comparatively free from civil or other pressure. Because of the urgency and scope of emergency activities, civil and other authorities seeking office and storage space

may dangerously crowd or displace records of the past stored in governmental, industrial, or other centers. These considerations should be borne in mind in the selection of permanent or temporary buildings. It is significant in this connection that the new Bohemian Provincial Archives building is located away from the governmental and business center of Prague and that the building erected after the last war for the Prussian Privy State Archives is located in a suburb of Berlin. The situations of the Franklin D. Roosevelt Library, the Hayes Memorial Library, and the Hoover Library on War, Revolution, and Peace are precedents to be considered.

Once an administrator or custodian has concluded that the records in his charge are endangered and that some protective measures are warranted, he should cause a survey to be made of the premises. In doing so he will need competent assistance. There should be consultation with qualified engineers and architects. Information may be obtained from the Office of Civilian Defense and the State and local defense councils. Pertinent studies now under way by interested professional societies and scientific institutions will be published from time to time.

Protection from explosives.—Adequate protection of buildings against direct hits by most demolition bombs is not practical. It is evident, however, that buildings constructed with frames of steel or reinforced concrete withstand direct hits much better than buildings constructed with load-bearing walls of masonry or brick. Such load-bearing walls usually collapse when subjected to direct hits, blasts from near hits, or heavy lateral pressures such as that caused by earth shock from a bomb exploding within the ground nearby. Steel-frame structures, properly designed, are comparatively immune to earth shock. Likewise the blast from a near hit causes less damage to buildings of steel-frame or concrete-frame construction than to buildings with load-bearing walls. Even though one or more of the non-load-bearing walls are blown in, the loss is limited. If such walls are penetrated by bomb fragments or splinters, serious damage to this type of structure is still unlikely. In general steel frames appear to fare better than concrete provided that the steel frames have been fireproofed. Destruction of steel frames by fire has been many times greater than damage from explosion.

The advantages of the safer type of structure may be had for the storage of records without the expense of erecting an entirely new building. Perhaps with some ingenuity and exploration the administrator or custodian of records will find a structure that can be adapted to his purpose. Officials of the Archives Nationales in Paris have made excellent use of a long low building already on the

premises that at one time had probably been a large stable or workshop. Steel frames bearing shelves, passageways, and the like were installed independently of the old walls. If these walls should be blown out by a direct hit or blown in by a near one, there is an excellent chance that the load-bearing steel frame would hold except for any part that might be hit directly.

When the building load is borne by a steel or concrete frame, the primary purpose of the walls, normally, is to withstand the elements and, in the event of an attack, to withstand fragments, splinters, and, to some extent, blast. The required thickness of the more common building materials for this purpose, assuming an explosion of a 500-pound bomb at a distance of 50 feet, is as follows: Brick, 13½ inches; plain concrete, 15 inches; concrete containing normal structural reinforcement, 12 inches; concrete specially reinforced to resist high local stresses in diagonal tension, 10 inches. Lacking these thicknesses, mild steel plate, 1½ inches thick, a sand or earth revetment, 2½ feet thick, or gravel or stone held in place by wood or iron will yield equivalent protection.

Whatever precautions are taken may be of a permanent or a temporary character. Unless the cost is prohibitive permanent precautions or measures having some peacetime utility are obviously to be preferred. This applies to temporary refuges for evacuated records as well as to permanent depositories. What may be chosen as a temporary refuge, for example, might well continue to serve as an auxiliary or overflow depository in peacetime.

Sandbag barricades, usually restricted to the ground floor, have withstood bomb fragments very well, but otherwise they have not been as effective as it was hoped they would be at the outset of the present war. They provide no protection from earth shock or blast resulting from near hits, and, exposed to normal rainfall and snow, they disintegrate after a few months. As a temporary device, bags of sand, earth, or other materials will undoubtedly be used. A sandbag revetment with an average thickness of 3 feet is a reasonable protection against fragments. A small air space between the wall and the barricade is recommended. Some protection against the elements will prolong the life of bags of sand or earth.

Windows and skylights are obviously vulnerable points. Windows and other apertures on the ground floor can be protected from near hits by sand or earth facings, 2 to 3 feet thick. All windows could receive excellent protection from 1½-inch steel shutters, if they were procurable. The danger to personnel from shattered glass, like the danger from incendiary bombs, is more fully realized as a result of experiences in Europe during the present war. Since glass may

be shattered by explosions at a considerable distance, this danger is more widespread than those dangers resulting from direct or near hits. Except for the effects of a blast from a nearby explosion, some protection can be had. Windows may be left open or removed. Light steel or 2-inch wooden shutters can be used. Scattering of glass may be diminished by devising some adhesive to paste to the glass and overlapping the frames or by wire netting attached to the window sashes. Curtains of heavy materials or mattresses may keep out some debris and diminish the danger from flying glass. Wire netting hung under skylights will serve a similar purpose.

In large buildings containing long corridors or rooms of considerable size, strong partitions may serve as baffle walls to diminish the blast effects of explosions. If such walls are fireproofed they may also serve as fire breaks.

In view of recent experiences it is now believed that, in most multistoried buildings of steel-frame or concrete-frame construction, the safest areas are those in the lowest portions near the center of the building. The most valuable collections can be placed in these areas provided there is little danger of the collapse of the whole structure or the fall of heavy machinery from the roof or upper floors. Such areas have protection from the floors above and from the intervening partitions as well as from the outside walls. In smaller buildings of this construction, areas containing valuable collections may be surrounded by sandbags. This was done for the most valued records in the Hungarian Royal State Archives in Budapest, but so far as is known its effectiveness has not been tested.

If aerial attack is imminent, the possibility of loss of power and water must be considered. An improvised water supply may be of paramount importance. The municipal authorities of Washington, D. C., have already requested funds for the construction of reservoirs at key points in the city. Provision of an independent power supply may be justified in some cases. Gas should be turned off at the control point whenever danger is imminent.

Protection from incendiary bombs and fires.—The danger to record materials from incendiary bombs or fires following explosions is acute. In this respect the lesson to be learned from the British experience is important. There appears to be no substitute for constant vigilance during an attack as well as ample preparations before an attack. The difficulty of the problem to be solved is easily illustrated by the fact that one plane carrying a load of 2,000 incendiary bombs and dropping them in lots of 40 per second can cover an area nearly 3 miles long and 300 feet wide, with one bomb, on the average, falling in each 50 x 50 foot square within the area.

Most incendiary bombs will break through the average roof. Frequently their fall will be broken by the next obstruction, usually that of an attic floor. If the attic or upper floors contain inflammable material it will be difficult to limit the destruction. To withstand the penetrative power of a small incendiary bomb weighing a little over 2 pounds, according to the information now accepted as correct, would require 3½ to 4 inches of reinforced portland cement concrete or ¼ inch of mild steel. The resistance that can be expected from existing roofs can be gauged from these figures. The strength of the roofing itself would of course diminish the requirements of the reinforcement. It must be assumed, moreover, that if protection against the smaller incendiary bombs is effective larger bombs would be used.

Protective measures against incendiary bombs may be directed against their penetration and, in the event that they do penetrate, against fire hazards by the provision of coverings on which the bombs can burn out without starting a fire. Both of these objectives may be attained in some degree at least by a single precaution. Existing roofs might be strengthened with mats of concrete reinforced with metal mesh. Two-inch mats of this type should be borne by a properly designed roof without further reinforcing. When the contents of a building are of great value, greater thicknesses of the reinforced concrete are justified. This will usually entail strengthening the roof supports. Wood roof sheathing or flooring can be protected against combustion alone by thinner coverings. A 1¼-inch to 2-inch thickness of loose granular incombustible materials, such as limestone screenings, slate dust, dry sand, or ground slag are among those proposed. Some effort, however, must be made to insure against too much disturbance of the fill. Some covering such as a metal mesh may be used for this purpose. With or without fill a tight deck is desirable.

Since there is no detonation from incendiary bombs and they penetrate most roofs, their discovery is difficult and particularly so in adverse weather conditions. But early discovery is of the highest importance. British regulations now require one watcher station on each defended roof and upper story and one additional station for every 8,000 square feet. Watcher stations at ground level are required at 400-foot to 500-foot intervals. Watcher stations must be given protection against fragments from antiaircraft shells, flying debris, and the effects of near hits by light bombs. More detailed instructions and supervision, equipment, and training in this respect can be expected from the civilian defense authorities in due time.

Bombs of the thermite magnesium alloy type once ignited cannot be extinguished or approached until the thermite mixture burns out. This takes about 1 minute. Thereafter if the bomb is doing any damage or lighting the way for other raiders, its burning may be restrained by covering it with dry sand, ashes, or clay. Moisture of any kind accelerates the burning. When the glow has subsided the bomb can be picked up with long tongs and removed in a container filled with dry sand, ashes, or clay. On exposure to the air, the bomb will reignite until it has burned itself out. Its burning time can be reduced to a few minutes by the cautious application of a fine spray of water.

Recently it has been found that some types of magnesium alloy bombs contain explosive charges that may go off at any time during the burning period. This may cause the bomb to jump 10 feet or more and should be anticipated in the application of controls described here or to be devised later.

Experiments and tests of materials and equipment to be used against incendiary bombs are now being made. Reports on their efficiency will be made from time to time. In this and similar matters administrators and custodians of records will have the guidance of civilian defense authorities, State and local defense councils, and local fire-fighting units. Because of the peculiar extent of the fire hazard to record groups, each administrator or custodian thereof is responsible for the additional precautions that are necessary in his case.

EVACUATION

The evacuation of archives, manuscripts, or other papers from original depositories to places of emergency storage, although an extreme measure, will in many instances prove to be the most practical means of insuring their complete and certain protection. The existence in the United States, even in the Atlantic coastal region, of many areas that can be considered relatively danger free invites the formulation of a program of evacuation on a scale not possible in Europe.

The decision as to what to evacuate will normally be made when the record groups of an office or institution are initially appraised and priorities for protection are established. The element of cost will probably be a determining factor in most cases, and for this reason the expense involved in evacuation should be carefully estimated before any decision is reached. Field agencies of the Federal Government and subordinate State offices will usually need or at least desire the approval of superior officials before removing their records. If such authority is necessary it should be obtained before

detailed plans of evacuation are attempted. National or State-wide plans for the protection of records may modify local or individual action.

It must be emphasized that evacuation cannot be improvised on the spur of the moment. Administrators or custodians must plan carefully, in advance and in detail, all stages of the scheme of evacuation, establish clearly the lines of personal responsibility, and above all coordinate every effort with the plans of other administrators and with those of the civil and military defense authorities. Any plan of evacuation will of necessity consider these problems: When to evacuate, the selection of emergency storage, preparation for removal, transportation, and care in storage.

When to evacuate.—Since the nature of modern warfare precludes the drawing of definite conclusions as to the degree of emergency existing at any time and renders hazardous the prediction of future developments, custodians of archives who have decided upon evacuation will find it difficult to determine the time when removal should take place. Obviously evacuation must not be so long delayed that transportation and communication facilities will be interrupted or utilized for military operations or in the interest of civilian defense. Records having such great value that their safety must be insured at all costs should be evacuated before an actual emergency arises. Premature action based upon a hysterical appraisal of the situation will be avoided if administrators and custodians keep in touch with the local military and civil authorities and are guided by the advice of these officials.

It is of greatest importance that those individuals who are to supervise the evacuation process be prepared to act on short notice. When the time for removal does arrive the one essential is that the task be accomplished speedily and without mishap. For this reason the plans for evacuation should not be delayed. The sooner they are formulated the better. The plans, carefully drawn and in written form, should cover all contingencies, and staff members assigned to handle the transfer should familiarize themselves with every detail.

The selection of emergency storage facilities.—The necessity for coordination of effort in planning for the evacuation of archives is presented most clearly by the problems involved in the selection of an emergency depository. Such a depository must, of course, by reason of its construction or location, be relatively free from danger, and the determination of this fact will require the advice of construction engineers and military authorities. Whether a proposed depository may in time of emergency be required for the use of

civilian defense or by the military forces are additional preliminary questions to be resolved only on the advice of responsible officials.

In metropolitan areas containing numerous record-keeping institutions considerable duplication of effort will be avoided if the agencies and offices concerned cooperate in the selection of available storage facilities. Each administrator will be limited to some extent by his own peculiar problems, but an integrated program will achieve far more satisfactory results than will uncorrelated individual activity. Since it can be presumed that a large number of the record or other manuscript groups that ought to be evacuated will be relatively small in volume, cooperative action to reduce the cost of storage facilities is highly desirable. Joint action by several agencies may, by a distribution of rental costs, make available to all a depository that otherwise would be impractical.

A survey of available depositories such as that projected by the Historical Records Survey of the Work Projects Administration can be recommended to all administrators and custodians whether acting individually or in concert. Before such a survey is undertaken, however, inquiry should be made at the Office of the State Director of the Work Projects Administration to ascertain whether the Historical Records Survey project has been initiated in the locality concerned. Any survey of proposed depositories should obtain for each building exact information as to its location, accessibility, ownership, and capacity and such features as heating, lighting, and ventilation. Such structures as unused factory buildings or mills should be considered in addition to office buildings and regular warehouses and bank vaults. The greatest economy of space will be achieved in those buildings whose floor levels do not exceed 7 feet 6 inches clear. Experience in Great Britain indicates that country homes in areas remote from military objectives have afforded a maximum of safety. Among the emergency depositories selected for the evacuation of the large collections of the British Public Record Office are a prison, a castle, and a hospital.

It is reported that a New England historical society has already made plans for the evacuation of its material to a university in the western part of the State. This action may well serve as an example to governmental agencies and private organizations. Large business concerns operating in several sections of the Nation should, for instance, be able to remove records that are in danger to branch offices less exposed to the hazards of war. Churches, fraternal organizations, labor unions, and other private agencies may find it possible to make somewhat similar arrangements. Evacuation of records in this manner has the obvious advantage of permitting continued use of the documents with little inconvenience.

The peculiar needs of each administrator or custodian must be considered before an emergency depository is selected. Servicing requirements, for instance, will determine the space required and the distance from the operating office of buildings in which records may be stored. It may be necessary also that quarters be provided for personnel. Especially fragile materials will require better storage facilities than more durable records. Film records should be stored in fireproof vaults in which they can be periodically inspected. A complete canvass of individual problems should be made before a depository is selected and leasing agreements are concluded.

Special attention must be called to the desirability of checking carefully the physical characteristics of a proposed depository. Floor plans that indicate the location of doors, windows, stairs, and elevators and the maximum storage can easily be prepared. Estimates as to capacity should be made with due regard to arrangement requirements and the type of container to be used as well as to the carrying weight of the floors. Paper records, whether bound or unbound, deteriorate quickly when exposed to extremes of temperature or humidity, to excessive light, or to dirt and insect pests. Dampness and insects are perhaps the two most prevalent and dangerous hazards to records. Insect pests can be controlled in most cases by use of a poison bait. Sodium fluoride and starch or borax and starch mixed in 50–50 proportions have proved effective against most of the ordinary insects.

Ideal conditions of storage require a constant relative humidity of between 45 and 55 percent. While a low relative humidity is not especially dangerous for records in dead storage, a high relative humidity is very dangerous to all records. Unventilated basements are not safe for the storage of records unless precautions are taken to reduce the excessive humidity. This can be done by raising the temperature of the room or by the use of a desiccating agent such as calcium chloride. It is best in matters of this nature to obtain the assistance of air-conditioning or chemical engineers or other experts. Unless staff members are to be located in the depository, temperature and ventilation are not of extreme importance. A temperature of from 65° to 75° is desirable, and some materials such as vellum bindings deteriorate in temperatures over 80°.

Preparation for removal.—Any plan for the emergency removal of archives or other records should provide for the preparation well in advance of the materials involved and for the assignment to specified personnel of the responsibility for supervising the transfer. Each administrator will naturally consider the possible demands that may be made upon his staff in time of emergency by the military or civil-

ian authorities. In general office buildings, county courthouses, and other buildings containing a number of record-keeping agencies that have decided upon evacuation, the selection of personnel should probably be made jointly. A single plan of evacuation for such depositories will certainly result in less confusion than half a dozen plans prepared and carried out independently of each other. Rapid removal, it must be repeated, will be of the first importance once evacuation is undertaken; delays will be avoided if plans are drawn cooperatively to cover such practical details as the use of elevators, stairs, loading platforms, and trucks. In any case, each individual selected to assist in the evacuation of records must be fully informed as to the part he is expected to play.

A logical first step in planning for the actual physical transfer of records, if more than one group or a single group consisting of several parts is concerned, is the establishment of the sequence of their removal. Ordinarily priority should be given to the most valuable papers, but practical considerations, such as the plan of arrangement necessary in temporary storage, may affect the decision. Once the sequence of removal has been determined, descriptive lists or inventories of the material should be prepared. These should be complete enough to establish accurately the nature and amount of each group of records. Sufficient copies of the lists should be prepared so that one may be kept with the records and one or more by the administrator or custodian.[5]

A first rule in the management of archives and manuscripts is that utmost care must be exercised to protect the files from the danger of disarrangement. This caution should be borne in mind when consideration is given to the problem of containers. When practical it is wise to transfer records in their original containers and thus reduce to a minimum the handling of the papers themselves. It can be anticipated, however, that in many cases the limitations of transport or storage facilities will preclude the use of original containers. In such cases and for bound volumes and other material filed on shelving or in containers that cannot be moved, special containers will have to be provided.

The size and kind of containers procured will depend upon such factors as the money available, the means of transportation, and whether the containers are to be used in storage, as well as upon the type of record to be removed. Collapsible corrugated cardboard

[5] Record custodians may be able to obtain technical assistance in compiling descriptive lists or inventories as well as clerical and typing assistance in copying them through the Work Projects Administrators in the States in which the record depositories are located.

boxes if properly packed are perhaps the most satisfactory and inexpensive containers available, and they have the added advantage of occupying little space prior to use. Cardboard transfer cases to accommodate either legal-size or standard-size correspondence files are also available in most localities. If containers that open on top are stacked in tiers in storage, consultation of the records in them will be inconvenient if not impossible. Shelving can be provided for the boxes but the cost of this equipment may make it preferable to use a different type of container. The single-drawer steel transfer case, though relatively expensive, is so designed as to make possible the servicing of records in bulk storage.

Some custodians may desire to have special containers constructed to hold cardboard letter boxes, bound volumes, manuscript boxes, and the like. Local costs will determine the material to be used. For bound volumes British authorities recommend the use of a collapsible plywood box, 25 x 19 x 12 inches, fastened with screws and with the top and bottom removable. Such containers can be stacked in tiers on their sides and, with either top or bottom removed, serve as shelves in the depository. If this is desired the volumes must be packed in such manner as to be accessible when the box is opened.

Regardless of the type of container or box decided upon, record custodians should consider the following suggestions: (1) A few standard sizes will be less expensive and more convenient than numerous special sizes. (2) Containers ordinarily should be small enough to be handled by one man when packed. If original containers, such as 4-drawer filing cabinets, are to be used, the additional personnel and equipment necessary to move them must be provided. (3) For convenience in storing and transporting, containers having protruding handles, locks, or hinges should not be used. (4) All containers should be obtained beforehand.

After the sequence of removal has been established and containers have been procured, the next step in arranging for the evacuation of records is to provide for the packing and tagging of the containers. All containers should be packed tightly, although undue strain or pressure on the records should be avoided. Filing drawers should be filled to capacity or otherwise tightened to prevent spilling of the papers. When necessary the ends or sides of packing boxes or cases should be filled with crumpled paper. Bound volumes will be subjected to least strain if they are packed flat. The contents of partly filled letter-file boxes should be consolidated or the loose condition corrected by crumpled paper. Maps that cannot be packed flat may be rolled and tied and inserted in cardboard tubes. The use of waterproof paper is recommended for all containers if the relative humidity

of the depository is likely to be excessive. All containers should be sealed while in transit.

Immediately after packing, each container should be tagged or marked in such a way as to indicate adequately and concisely the custodial institution, the contents, and the sequence of the file group. If tags are used, they must be fastened securely to the containers, preferably by glue, in order to avoid possible loss in moving; as an additional safeguard a second copy of the tag may be placed inside the container. If containers are to be marked, crayons or paint are preferable to chalk. To aid in locating material consigned to storage, the symbols and numbers used on containers should be added to the descriptive lists or inventories of the evacuated material.

Transportation.—The means of transportation used to effect evacuation will depend upon the volume of material to be moved, the distance to be covered, and comparative costs. Large groups of records to be shipped long distances may perhaps be handled most conveniently by railroad; ordinarily, however, motor transport will be found most adaptable to the transfer of records. Since the method of transportation should be taken into consideration in selecting the type of container to be used and the manner of packing, the choice must be made at an early date. Provisional arrangements with the transportation concern selected should cover such items as insurance and labor to be supplied. If trucks are to be used, their weatherproofing, the number of shipments and their spacing, the routes to be followed, special equipment necessary (dollies, skids, stevedores), and similar problems should be analyzed.

Whatever means of transportation are chosen, it should be made certain that the facilities will be available on short notice and in spite of the abnormal conditions that will arise during an emergency. To avoid trouble, it may be reiterated, as much of the evacuation process as possible should be accomplished before an immediate emergency arises.

An essential function of the personnel assigned to handle the evacuation of records will be the supervision of the loading and unloading of the containers. One staff member at least should supervise the placing of the containers on the trucks and another should see to their deposit in emergency storage. Unless the trucks are locked, it will be wise to provide for additional members to accompany the shipments. Shipment receipts should be made out for each truck load and checked carefully when the trucks are unloaded.

Care of records in emergency storage.—Complications in the management and care of records placed in emergency storage will be avoided if attention is given beforehand to the preparation of the

depository and to the plan of arrangement desired for the record collections. Few depositories will be found that do not require some renovation or repair. All necessary work of this character should be done as soon as arrangements for the use of the depository are concluded. Provision should also be made in advance for such items as emergency fire protection, telephone installation, and special equipment for the handling or storing of containers. If shelving is to be used, detailed and exact figures on sizes and amounts should be obtained and provision should be made for its installation. Because of the danger of dampness containers should not be placed directly on basement floors. Frames at least 6 inches high on which the containers can be placed should be installed before the transfer begins.

The plan of arrangement to be given records in storage will be limited to some extent by the nature of the depository and by the character of the records. A complete plan showing the disposition of each record group should be perfected and the staff members responsible for the supervision of the transfer should adapt the sequence of shipments to it. Files to be placed in dead storage will naturally be assigned to the least accessible portions of the repository. No records should be placed in proximity to heating apparatus. Ordinarily some facilities should be provided for the use of personnel and guards stationed at the depository. If bound volumes or other records are to be unpacked after deposit in storage, it may be desirable to provide for an area in which this task can be accomplished.

Records valuable enough to justify the expense and labor of evacuation should not be placed in storage and then forgotten. To guard against the danger of dampness and insect pests, periodic examinations of the material should be made. A definite routine of checking should be established and in all cases a record should be made of findings. Until it is certain that atmospheric conditions in the depository have been stabilized it is important, particularly in basement depositories, that a daily check be made of the relative humidity. This can be done easily by use of a wet and dry bulb thermometer. Whenever the relative humidity exceeds 55 or 60 percent, a condition dangerous to records is indicated, and steps should be taken immediately to correct the situation. When conditions are known to be stable, a check of the relative humidity once a week should be sufficient.

Officials who have records in emergency storage should also guard against their possible loss by fire or theft. Fire-fighting equipment will be determined by the location and construction of the depository. Personnel in charge of the records should be trained in its use. All doors and windows should be supplied with suitable locks, and, if possible, guard service after working hours should be provided.

SELECT BIBLIOGRAPHY ON THE CONSERVATION OF CULTURAL RESOURCES IN TIMES OF WAR [6]

Air raid damage to libraries. *Library Association record*, 43:2 (Jan. 1940).

Outlines procedure for recording damage and filing government compensation claims.

Air-raid damage to London museums; effects of the September raids. *Museums journal*, 40:225 (Nov. 1940).

Air raid precautions for government contractors. London, 1939.

Air raid precautions in Germany. *Intellectual co-operation bulletin*, 1940, no. 5, p. 191–193.

A decree by the Minister of Aviation, Aug. 26, 1939, giving instructions for the application of measures of defense against air raids in the museums, libraries, archives, and similar cultural institutions of Germany.

Air raid precautions in museums, picture galleries and libraries. Printed by order of the Trustees, The British Museum. [London] 1939. 59 p.

Perhaps the best introduction to the problem. It embodies the report of a committee representing the national museums, picture galleries, and libraries, set up at the instance of the Standing Commission for Museums and Galleries, and is designed to serve as a guide in safeguarding collections, premises, and staffs while on duty. Most of the recommendations prescribed in chapters 1, "Staffs," and 2, "Buildings," are taken from the series of air-raid precautions handbooks and memoranda issued by the Home Office. Chapter 3, "Material," has been compiled chiefly from the experience of the directors of the museums, galleries, and libraries and from the researches of their staffs. For a review, see *Museums journal*, 39:269–270 (Aug. 1939).

American Association of Museums. Memorandum on air-raid precautions. 1940. 1 p., processed.

De **archieven** en de luchtbescherming. *Nederlandsch archievenblad*, 47:33–64 (1939).

Reports on protective measures taken in Dutch archival repositories.

Association of American Railroads, Freight Container Bureau. The A B C of good crating. New York, 1927. 16 p. (*Bulletin* no. 6.)

[6] All but a few of the items listed in this bibliography have been examined either in the library of The National Archives or in the Library of Congress, and dozens of other items listed in footnotes and periodical indexes have been examined and excluded because they are either too general or too inconsequential to merit inclusion. Some items that were not available for examination have been left in on the chance that they would be valuable. Doubtless important items have been missed, and it is certain that much additional material of value will be published in the near future.

Association of American Railroads, Freight Container Bureau. A guide to good construction of nailed wooden boxes. New York, 1930. 23 p. (*Bulletin* no. 14.)

Bemrose, Geoffrey. Tea chests for storage. *Museums journal*, 39:333 (Oct. 1939).

A note suggesting the use of tea chests to store pottery.

Bendikson, Lodewyk. Need for safety measures. *Library journal*, 65:774 (Oct. 1, 1940).

Urges immediate action for the microcopying of documentary treasures in order to insure the preservation of their texts and to have copies available for use when the originals are stored.

Books in air raids. *Library journal*, 65:1040 (Dec. 1, 1940).

Reprint of a communication in *Library Association record* for Oct. 1940 on the salvage of books after air raids.

British Museum (Natural History) air raid damage. *Nature*, 147:20 (Jan. 11, 1941).

British Records Association. Proceedings, 1939, 1940. [London, 1940–41.] 2 nos.

The number for 1939 contains (p. 5–8) an account of an informal discussion relating to "Records in war time," and that for 1940 contains (p. 6–8) an account of an informal discussion on "Local work for preservation of records in war time," relating in large part to the prevention of the destruction of records to meet the demand for waste paper.

British Records Association, Records Preservation Section. Report, 1938/39, 1939/40. [London, 1939–40.] 2 nos.

The first of these reports contains a paragraph on the campaign to prevent the "indiscriminate destruction which took place in 1916–1918, upon the national call for waste paper"; the second notes the progress of the campaign.

British Records Association, Technical Section. Bulletin 12. [London] 1941. 9 p., processed.

Includes (p. 3–6) information on the treatment of documents damaged by water, fire, and gas and on the restoration of faded ink and (p. 6–7) a communication from Hilary Jenkinson describing the "Effects of surrounding conflagration on the contents of a city strong room."

Burkard, Hans. Die Frage des Luftschutzes für Archive und Akteien. *Archivalische Zeitschrift*, 44:172–180 (1936).

A detailed discussion, with recommendations, of the problems presented to archivists by air warfare, including the location and construction of buildings for archives, suitable evacuation areas, fireproofing and other means of protection against fire, and means of minimizing damage from explosions and gas.

Business Historical Society. The preservation of business records. Boston, 1940. 56 p.

A study prepared by Ralph M. Hower, which indicates why business records should be preserved and what material should be selected for preservation. It also offers suggestions for establishing a preservation program.

Catalonia takes steps to preserve art work from destruction. *Museum news*, 14: 1 (Jan. 15, 1937).

Celier, Léonce. Les mesures de protection contre les bombardements aériens dans les bibliothèques et les archives. Union Française des Organismes de Documentation, *La documentation en France*, 9: 3–5 (Jan. 1940).

Derby museum; war precautions. *Museums journal*, 39:462 (Feb. 1940).

A short statement on storage of pictures and ceramic collections.

Les **études** de l'Office International des Musées et la protection des monuments et oeuvres d'art en temps de guerre. *Mouseion*, supp., Apr. 1938, p. 1–3.

Includes a list of works on the subject published by the office.

L'evacuation de Louvre. *Prométhée*, 20:256–259 (Oct. 1939).

Flower, C. T. War conditions and record work; problems affecting archivists. British Records Association, Technical Section, *Bulletin*, no. 7, p. 3–4 (Oct. 1939).

Reports air-raid precautions taken by the Public Record Office and makes suggestions about evacuation; refers for detail to the handbook *Air raid precautions in museums, picture galleries and libraries.*

Foundoukidis, Euripide. L'Office International des Musées et la protection des monuments et oeuvres d'art en temps de guerre. *Mouseion*, vol. 35–36, p. 187–200 (1936).

French museums and the war; early precautions and present activities. *Museums journal*, 39:418–419 (Jan. 1940).

Discusses protection of paintings, sculpture, glassware, and monuments.

Graf, John E. Emergency protection measures for museums. *Museum news*, 19:8–9 (June 15, 1941).

Grant, Julius. The preservation of documentary records in war-time and in the future. *Librarian*, 30:12, 24–27 (Sept.–Oct. 1940).

Discusses the problem of paper quality in wartime and precautions against air raids.

Graswinckel, D. P. M. Bescherming van archieven tegen oorlogsgevaar. *Nederlandsch archievenblad*, 46:51–62 (1938).

Includes recommendations regarding storage space, removal of records, and neutralization of materials contaminated with mustard and similar gases.

Greene, Sir Wilfrid. Preservation of records. *Library Association record*, 41: 563 (Nov. 1939).

Call of the Master of the Rolls to defend records against the demand for waste paper in wartime. This letter was printed and widely distributed by the British Records Association.

Hall, Hubert. British archives and the sources for the history of the World War. London, 1925. 445 p. (*Economic and social history of the World War, British series.*)

Hidden away in the text are scattered references to British experiences in the last war, e. g., "weeding" of records for waste paper (p. 25 et seq.). The volume is incompletely indexed.

Hammer, Franz. Luftschutz in Bibliotheken. *Zentralblatt für Bibliothekswesen*, 52: 496–505 (1935).

The **Hancock** Museum and the war; emergency work at Newcastle upon Tyne. *Museums journal*, 39: 357–358 (Nov. 1939).

An illustrated article describing plans made and carried out by the museum.

International Museums Office, *Paris.* La protection des monuments et oeuvres d'art en temps de guerre. Paris, 1939. 232 p.

This manual, reprinted from *Mouseion*, vol. 47–48, nos. 3–4 (1939), was distributed late in November or early in December 1939. It is divided into two parts: "Méthodes techniques de protection," which is most useful, and "Protection internationale," which now makes sorry reading.

Jenkinson, Hilary. The choice of records for preservation; some practical hints. *Library Association record*, 41: 543–544 (Nov. 1939).

Intended as a guide for the selection of record material for preservation from pulping.

Jenkinson, Hilary. A manual of archive administration. New and rev. ed. London, 1937. 256 p.

Has short paragraphs on evacuation, subterranean vaults, fire, and explosive bombs (p. 45, 49).

Kenyon, Sir Frederic. La protection du patrimoine artistique en Espagne. *Mouseion*, vol. 37–38, p. 183–192 (1937).

Kühn, Karl F. Fliegerschutz für Kunst und Kulturdenkmäler. Bruenn, 1939. 58 p.

Laer, Hermann von. Luftschutz im Dienste des deutschen Kunstbesitzes. *Der deutsche Verwaltungsbeamte*, 1935, p. 749.

This has not been available for examination.

Leland, Waldo G. The archivist in times of emergency. *American archivist*, 4: 1–12 (Jan. 1941).

Address of the president of the Society of American Archivists read at the annual meeting, Nov. 12, 1940, in which he discusses the responsibility of the archivist for the safety of the records in his custody and for their interpretation and the opportunity for leadership on the part of the archivist in the collection and preservation of materials upon which the history of the emergency will be based. He closes with a summary in which he offers a program for the society.

Leroy, Emile. French libraries and the war. *Journal of documentary reproduction*, 3: 124–127 (June 1940).

Protective measures taken to safeguard French libraries and their collections from aerial bombing. Refers especially to the activities of the Bibliothèque Nationale and tells of the use of microfilm to insure preservation of an important card catalog.

Libraries and war; a survey. *Library Association record*, 41: 508–512 (Oct. 1939).

Summary of the repercussions of war on all kinds of library work in Great Britain.

Libraries in bombed centres; some reports. *Library review*, 7: 318–325 (winter 1940).

Air-raid experiences.

Libraries in France and Great Britain during the war. *Intellectual co-operation bulletin*, 1940, no. 1–2, p. 42–46.

Describes some of the procedures followed by libraries in evaluating valuable material.

Library photography. *Library journal*, 65:980 (Nov. 15, 1940).

Includes a paragraph on the effect of a bomb explosion on "a safe of parish records."

Les **mesures** de protection prises dans différents pays contre les dangers de la guerre. *Mouseion*, supp., Sept.–Oct. 1939, p. 13–22.

This compilation of the International Museums Office summarizes measures taken in Belgium, the Netherlands, Switzerland, Greece, France, Great Britain, Germany, Egypt, and Norway to protect their cultural treasures.

Les **mesures** prises en Belgique pour protéger les musées contre les dangers de guerre. *Mouseion*, supp., Nov. 1939, p. 1–3.

Meyer, Herbert. Air raid precautions for record offices, libraries, and museums. *Library Association record*, 40:204–209 (May 1938).

Abridged translation by W. F. Wright of an article in the Jan. 1938 issue of *Gasschutz und Luftschutz* (Zeitschrift für das gesamte Gebiet des Gas- und Luftschutzes der Zivilbevölkerung). A general discussion of air-raid precautions, including the location and construction of buildings, the fireproofing of unprotected timber, and plans for the transfer of material to protective storage.

Les **musées** britanniques et la guerre. *Mouseion*, supp., Dec. 1939, p. 15–16.

Describes measures taken by certain museums to protect their collections.

Museums in a neutral country; war-time precautions in Belgium. *Museums journal*, 39:485–486 (Mar. 1940).

A résumé of an article in *Mouseion*.

Museums in war-time. *Museums journal*, 39:318–320 (Oct. 1939).

A memorandum by the Museums Association containing suggestions on the protection of collections.

National Fire Protection Association. Fire defense; a compilation of available material on air-set fires, bombs and sabotage, civilian defense, fire fighting, and the safeguarding of industrial production for defense, edited by Horatio Bond. Boston [1941]. 221 p.

National Fire Protection Association. A study of record container performance. Boston, 1940. 13 p.

Reprinted from the association's *Quarterly* for Jan. 1940.

National Fire Protection Association, Committee on Protection of Records. Protection of records; consolidated reports. Boston, 1939. 88 p.

Reprinted from *Proceedings* of annual meetings, 1923–39. Contains valuable information concerning the fire resistance qualities of buildings, record containers, and safes and vaults. Also discusses principles for the selection of business records for disposal, which might be applicable under emergency conditions.

Navarro, Tomás. La protection des archives et bibliothèques espagnoles pendant la guerre. International Federation of Library Associations, *Publications*, 10:110–113 (1938).

Norton, Margaret C. Archives and war. *Illinois libraries*, 23:17–19 (Feb. 1941).

On the importance of the preservation of records "essential to citizenship and property rights."

Notes and news. *Library review*, 7:309–310 (autumn 1940).

Discussion of the suggestion that old newspapers, periodicals, and books of the British Museum and other libraries be microcopied to reduce their bulk and release the originals for waste paper.

Orne, Jerrold. The Library of Congress prepares for emergencies. American Library Association, *Bulletin*, 35:341–348 (June 1941).

Describes in considerable detail plans and preliminary measures taken for the safeguarding of materials of varying degrees of importance.

Prentiss, Augustin M. Civil air defense; a treatise on the protection of the civil population against air attack. New York [1941]. 334 p.

A member of the General Staff Corps of the U. S. Army describes "methods, equipment, and organization" for "protecting the population and industrial, business, and home property" against air attack.

La **protection** des monuments et objets historiques et artistiques contre les destructions de la guerre; proposition de la Société Néerlandaise d'Archéologie. *Mouseion*, vol. 39–40, p. 81–89 (1937).

La **protection** des monuments et œuvres d'art au cours de la guerre. *Mouseion*, supp., Jan. 1940, p. 4–5.

This is a French version of instructions issued by the German Minister of Aviation, Aug. 26, 1939, to museums, libraries, archives, and other cultural agencies.

Protection of office records in wartime by a borough treasurer. *Municipal journal*, 48:2113 (Sept. 29, 1939).

Rabut, J. La construction des dépôts d'archives et la défense passive. *Archives et bibliothèques*, 4:89–97 (1939).

A valuable article by an engineer discussing not only problems of the location and construction of archival buildings from the point of view of protection against the hazards of war but also those of the evacuation, transportation, and preservation in storage shelters of archival material.

Renau, José. L'organisation de la défense du patrimoine artistique et historique espagnol pendant la guerre civile. 1937. 66 p.

Reprint from *Mouseion*, vol. 39–40 (1937). A useful work, especially for its plates and diagrams.

Ronart, O. Le danger aérien et la sauvegarde des objets d'art aux Pays-Bas. *Revue générale de droit aérien*, 8:59–75 (Jan.–Mar. 1939).

Rosegrant, Robert G. The preservation of museum collections during war. *Museum news*, 19:9–12 (June 15, 1941).

Russell, John R. Libraries under fire. American Library Association, *Bulletin*, 35:277–281 (May 1941).

Discusses chiefly the damage to libraries in England resulting from air raids. Also contains some information on precautionary measures for the protection of collections.

Safety of collections in coastal areas. *Museums journal*, 40:180 (Sept. 1940).

The British Minister of Home Security recommends the evacuation of collections along the eastern and southern coasts of England.

Sánchez Cantón, Francisco J. Les premières mesures de défense du Prado au cours de la guerre civile en Espagne. *Mouseion*, vol. 39–40, p. 67–73 (1937).

La **sauvegarde** des objets historiques ou folkloriques. *Mouseion*, supp., Apr. 1940, p. 2.

Smith, Sherwood B. Air raids and protective construction. *Military engineer*, 33: 287–293 (July–Aug. 1941).

An engineer describes types of aerial bombs and their more important effects and discusses measures that may be taken to protect the civil population and minimize damage.

Stix, Alfred. La défense de musées en cas d'attaques aérionnes. *Mouseion*, vol. 39–40, p. 75–80 (1937).

Sweden, Riksarkivet. Meddelanden, 1939. Stockholm, 1940. 158 p.

Includes (p. 1) a brief description of measures preparatory to the evacuation of archival materials in wartime.

Taylor, W. D., and **Henry J. Walls.** A new method for the decipherment of charred documents. *Nature*, 147:417 (Apr. 5, 1941).

Describes a simple and generally applicable method equally suitable for typescript and for printed matter developed by the Metropolitan Police Laboratory in London.

Turner, William A. Public libraries in war-time. *Library Association record*, 41:508–512 (Oct. 1939).

Recapitulation of possible and probable effects of war on libraries.

U. S., Emergency Management Office, State and Local Cooperation Division. Civilian defense; protective construction; prepared by the War Department with the advice and assistance of other Federal agencies. Washington [1941]. 36 p. (*Structures series, Bulletin* no. 1.)

Discusses in detail such matters as the effects of bombs on buildings, the protection of buildings, and the design of new buildings to resist bombing effects.

U. S., Library of Congress. Report on the precautionary measures regarding its collections adopted by the Library of Congress; prepared by the Special Assistant to the Librarian, Jerrold Orne; June 1941. [Washington, 1941.] 25 p., processed.

U. S., National Park Service. Field manual for museums. Washington [1941]. 426 p.

Contains (ch. 7) valuable information on technical methods for the cleaning and repair of museum materials, which should be helpful in the restoration of materials damaged in wartime.

U. S., National Park Service. Observations concerning the conservation of monuments in Europe and America; [by] Dr. Hans Huth, collaborator. Washington, 1940. 64 p., processed.

Section 3 (p. 42–51) is entitled "Protection of monuments in war time." It deals generally with methods for the protection of "cultural" materials.

U. S., Work Projects Administration, District of Columbia. Bibliography of air raid precautions and civil defense. Washington, 1941. 343 p., processed.

Valencia, Junta Central del Tesora Artistico. Protección del tesoro bibliográfico nacional. Valencia, 1937.

This pamphlet has not been available for examination.

Visscher, Charles de. La protection internationale des monuments historiques et des oeuvres d'art en temps de guerre. *Mouseion*, vol. 35–36, p. 177–185 (1936).

Wachtel, Curt. Air raid defense (civilian). Brooklyn, 1941. 240 p.

Measures and methods of air-raid defense that are practiced in Europe and that have been tested and proven practical, presented by a scientist with long experience abroad.

The **War** on books: library losses in England. *Bulletins from Britain*, no. 36, supp., May 7, 1941.

Contains information concerning losses to particular libraries and collections as a result of air raids.

War-time activities in museums. *Museums journal*, 39: 328–330 (Oct. 1939).

Includes brief notes on the protection of material.

Wright, W. F. Air raid precautions for the library. *Library Association record*, 40: 510–512 (Oct. 1938).

The dangers to be guarded against and methods of protection.

Year's work in archives, 1938, 1939/40. [London] 1939–40. 2 nos.

Prepared and issued by the British Records Association. The number for 1938 appeared as no. 9 in the association's series of *Reprints*. Both numbers include data on the protection of records in wartime, and the number for 1939/40 contains a description (p. 5) of the work of evacuation and air-raid precautions at the Public Record Office.

Youngs, Willard O. War time activities of British libraries. California Library Association, *Bulletin*, 2: 115–116 (Dec. 1940).

Based on material in the *Library Association record* for July 1940.

Zernik, Franz. Über den Einfluss von Gaskampfstoffen auf Archivalien. *Archivalische Zeitschrift*, 44: 181–185 (1936).

A technical discussion of various types of gases, their effects on archival materials, and the means of counteracting those effects.

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BULLETINS OF THE NATIONAL ARCHIVES

No. 1. The National Archives of the United States. November 1936. 13 p.

No. 2. The conference of archivists at Chattanooga, December 28, 1935; Problems of American archivists, by Theodore C. Blegen. November 1936. 10 p.

No. 3. The care of records in a national emergency. December 1941. 36 p.